

Application No. 09/525,966

Atty Docket: 3COM 2534-1

REMARKS

In the specification, the Related Applications paragraph has been amended to update the filing information of the related application.

The title has been amended to more accurately describe the invention herein.

Rejections under 35 USC 102(e).

Claims 1-62 are pending, and all have been rejected under 35 USC 102(e) based on Locklear, Jr. et al., U.S. Pat. No. 6,252,878 B1 ("Locklear, Jr. et al."). Applicants have carefully reviewed Locklear, Jr. et al. without finding any reference to a switch appearing as a virtual storage device or establishing a session with one of a plurality of storage devices. Accordingly, Applicants respectfully traverse the rejection.

"Virtual storage device" and "storage device" are terms that are used repeatedly in the specification of this application. As the Examiner has not found either of these phrases in Locklear, Jr. et al., it is worth reviewing how the phrases are used in the specification. On page 6, lines 4-6, "The virtual storage device may appear to be one of a variety of storage devices in accordance with any of several protocols, including SCSI over IP, NAS or NASD." On the same page, lines 19-20, "The method for aggregation storage devices includes inserting a switch between the storage devices and the network, wherein the switch appears to be a virtual storage device." The shorter phrase, "virtual storage" is used *in passim*, including, at page 2, lines 30-32, "Disk drives with built-in file systems, sometimes referred to as network attached storage devices ("NAS"), are one type of the device that would benefit from or function as a cluster." On pages 30-31, the phrases "storage devices" and "disks" are both used to describe drawing references 1220, 1222, and 1224. This usage is consistent with the definition of "storage device" found at www.webopedia.com, "A device capable of storing data. The term usually refers to mass storage devices, such as disk and tape drives."

Much different from a "virtual storage device", Locklear, Jr. et al. describes a router as part of a communications network. There is no mention of file structures, network attached storage, disk storage or other components that might be expected to be found in a reference cited against the claims in this application. Locklear, Jr. et

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al. simply does not support a 102(e) anticipation rejection.

Regarding claim 1, the Examiner relies on Figures 2 and 4 as depicting virtual addressing of a plurality of storage devices through a switch. However, the Examiner does not refer to any reference numbers in either of the Figures, so it is impossible to tell how the Examiner believes that virtual addressing is depicted in the Figures or what the Examiner believes to be a plurality of storage devices. Applicants stand ready to respond to the Examiner's reliance on these Figures, once it is explained how the Examiner reads them.

Also regarding claim 1, the Examiner relies on column 5 lines 1-36 and column 7 lines 15-52 as depicting a switch that appears as a virtual storage device. Applicants have carefully reviewed the cited passages for "virtual storage device". While the terms "virtual path" and "virtual channel" are used at column 5 line 12, the terms are not used in connection with a storage device. The concept of a virtual storage device is completely absent. The storage referred to in the cited text is for a session table 122 that stores session, address, and mapping information. See, column 5 lines 13-15. This incidental storage is used by Locklear, Jr. et al. to operate programs, which is not the same as serving as a storage device. There is no suggestion that a process utilizing the switch fabric 104 in Locklear, Jr. et al. has any control over or ability to save to or retrieve from the incidental storage used to implement the session table. Accordingly, the cited text does not anticipate "A method of virtually addressing a plurality of storage devices through a switch ... wherein the switch appears as a virtual storage device". ✓

Further referring to claim 1, the Examiner relies on column 5 lines 37-58 and column 7 lines 53-67, as depicting selecting in the switch one of a plurality of storage devices coupled with the switch to participate in the file session. While the cited passages refer generally to a "session", nothing suggests that this would be a file session. The cited passages do not include any reference to file structures, network attached storage, disk storage or other components that might be expected to be found in a reference cited for selecting among a plurality of storage devices to participate in a file session. This element also is missing from the cited reference.

Much is missing from Locklear, Jr. et al. that is part of claim 1. Therefore, Locklear, Jr. et al. does not anticipate claim 1.

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Regarding claim 2, the Examiner relies on Figures 3A and 3C, column 5 line 59 to column 6 line 21, and column 6 line 60 to column 7 line 14, as teaching that the switch will appear as a virtual storage device without modification of TCP logic. In Locklear, Jr. et al., the text accompanying Figures 3A and 3C, beginning at the bottom of column 5, says that the Figures "illustrate the contents of session table 122, loading table 124, and routing table 130 stored in database 118 of access server 16." It should be clear that the database in Locklear, Jr. et al. is a persistent repository for data and programs used to implement the switch. This is incidental storage for operation of programs, not storage that a process utilizing the switch fabric 104 has any control over, or ability to save to, or retrieve from. Therefore, this incidental storage does not qualify as presenting a virtual storage device. There is no explanation in the text accompanying the Figures or in columns 5-7 of how TCP logic would be unmodified. Mention of IP/IPX at the top of column 7, does not address TCP logic. As there is no direct mention of TCP and the Examiner has not made any inherency argument, there is no anticipation of claim 2.

Regarding claims 3-5, the Examiner refers to a protocol list at column 3 lines 23-35, which concludes with the general characterization of the listed protocols as "suitable WAN protocol[s] or technolog[ies]." Claim 3 refers to SCSI over IP, which is not generally considered a WAN protocol. Claims 4-5 refer to file structures, as explained in the application. File structures cannot be considered WAN protocols. Therefore, claims 3-5 are not anticipated.

Regarding claim 6, the Examiner relies on column 5 line 47-58, and column 8 lines 1-13, as teaching a step of inspecting a file session packet and selecting one of a plurality of storage devices based on the contents of the packet. Of course, the switched router described by Locklear, Jr. et al. performs some packet inspection, BUT the cited text does not refer to a file session packet or to a plurality of storage devices, or to selecting from among a plurality of storage devices. Therefore, there is no anticipation of claim 6.

Regarding claim 9, without reference numbers for Figure 2 or any reference to a file directory in column 3 line 66 to column 5 line 45, Applicants cannot follow the Examiner's argument. We cannot tell what reference number(s) the Examiner believes depict a file directory and that term is not used in the cited passage.

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Referring again to www.webopedia.com, the definition of "directory" in the context of files is helpful. In relevant part, the first definition there reads, "An organizational unit, or container, used to organize folders and files into a hierarchical structure. Directories contain bookkeeping information about files that are, figuratively speaking, beneath them in the hierarchy. You can think of a directory as a file cabinet that contains folders that contain files." As "file directory" does not appear explicitly in the Figure or cited passages and the Examiner has not made any inherency argument, there is no anticipation.

Regarding claim 10, the Examiner relies on Figure 4 and column 7 lines 26-52, as teaching the steps of determining in the selected storage device to redirect a file session and handing off the file session. The Figure cited does not refer to a selected storage device, deciding to redirect an already established file session, or handing off an already established file session. The flowchart appears to relate to initial selection of a "route processor" by a switch fabric, which is not what is claimed. The passage in column 7 confirms that Figure 4 illustrates an access server making an initial selection of a route processor based on loading characteristics, such as packet rate, air array, session count, idle time major, or any other loading characteristics of route processors, which again is not what is claimed. Therefore, there is no anticipation.

Regarding claim 11, the Examiner relies on column 5 lines 1-58 and column 7 line 53, to column 8 line 13 as teaching transparent handoffs of a file session. Again, Locklear, Jr. et al. does not appear to have anything to do with file sessions or handoffs, much less transparent handoffs. Again, while the cited passages refer generally to a "session", nothing suggests that this would be a file session. The cited passages do not include any reference to file structures, network attached storage, disk storage or other components that might be expected to be found in a reference cited for handing off a file session. At best, Locklear, Jr. appears to refer to initial setup of sessions (not specifically file sessions) and does not refer anywhere to a "handoff". Therefore, there is no anticipation.

Regarding claim 12, the Examiner relies on Figure 1 and column 2 line 54 to column 3 line 53, as teaching that at least one of the plurality of storage devices coupled to the switch is another switch acting as a virtual storage device. Again,

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there is no reference in Locklear, Jr. et al. to the switch acting as a virtual storage device, much less any reference to cascading of switches acting as virtual storage devices. Therefore, there is no anticipation.

Regarding claims 13-24, the Examiner relies on Figure 2 and on column 5 lines 1-58, for the additional teaching of inserting a switch between storage devices and the network, wherein the switch appears as a virtual storage device. We have looked through Locklear Jr. et al. in vain for a diagram of a pre-existing network with storage devices and a teaching that the storage devices could be collectively addressed by a switch acting as a virtual storage device. This is not taught by Locklear Jr. et al., so there is no anticipation.

Regarding claims 25-33, the Examiner relies on the reasons set forth in rejecting claims 1-9. Applicants' remarks in response to rejection of claims 1-9 applies well to rejection of claims 25-33. Therefore, there is no anticipation.

Regarding claims 34-40, the Examiner relies on column 5 line 59 to column 6 line 21, for teaching the step of predicting in a switch coupled to a first storage device that the first storage device will require failover. While the cited passage refers to expiration of a session, for instance by equipment malfunction, at lines 1-2, there is no discussion of predicting a failure, much less predicting failure of a storage device. Therefore, there is no anticipation.

Regarding claims 41-47, the Examiner relies on the reasons set forth in rejecting claims 34-40. Applicants' remarks in response to rejection of claims 34-40 applies well to rejection of claims 41-47. Therefore, there is no anticipation.

Regarding claims 48-55, the Examiner relies on Figures 1-2 and on column 3 line 54 to column 4 line 67, as teaching determination in a first device that a session should be transferred from the first device to a second device, due to workload considerations. This set of claims is generalized to sessions, rather than file sessions. The cited passage does not refer to any load-balancing decision logic in a first device coupled to a switch, nor does it refer to handing off an already established session. Therefore, there is no anticipation.

Regarding claims 56-62, the Examiner relies on Figure 1 and on column 2 line 54 to column 3 line 53, for teaching cooperation between switches. This set of claims is generalized to sessions, rather than file sessions. Figure 1 is very simply

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described by Locklear, Jr. et al. as a communications system (a network) that provides communication between communication devices, including an access server. The cited passage which elaborates on this description of the Figure is a generalized description of a network and network protocols operative with hops, routers, bridges, gateways and other suitable communication devices. The cited passage has nothing to do with cooperation between switches to accomplish load-balancing. More generally, the reference addresses an initial selection of a route processor with which to establish a session. It does not refer to handing off a session. Therefore, there is no anticipation.

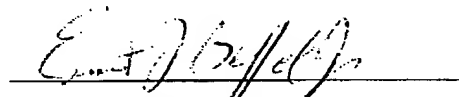
CONCLUSION

Applicants respectfully submit that the claims are not anticipated by the cited reference and solicit acceptance of the claims, in light of these remarks. If the Examiner disagrees and sees amendments that might facilitate allowance of the claims, a call would be appreciated.

Should any questions arise, the undersigned can ordinarily be reached at his office at 650-712-0340 from 8:30 to 5:30 PST, M-F and can be reached at his cell phone 415-902-6112 most other times.

Respectfully submitted,

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